US Army Corps
of Engineers
HUNTSVILLE ENGINEERING
SUPPORT CENTER

Defense Environmental Restoration Program
for
Formerly Used Defense Sites
Ordnance and Explosives
Chemical Warfare Materials

ARCHIVES SEARCH REPORT

FINDINGS

Carrington Island Precision Bombing Range

Great Salt Lake, Utah

Project Number - J08UT077701

SEPTEMBER 1996

Prepared by
US ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

Ordnance and Explosives
Chemical Warfare Material
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REPORT PLATES

1.0 INTRODUCTION

1.1 AUTHORITY

In 1986, Congress established the Defense Environmental Restoration Program (DERP) at 10 United State Code (USC) 2701 et seq. This program directed the Secretary of Defense to "carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary."

In March, 1990, the Environmental Protection Agency (EPA) issued a revised National Contingency Plan (NCP). Under 40 Code of Federal Regulations (CFR) 300.120, EPA designated the Department of Defense (DOD) to be the removal response authority for incidents involving DOD military weapons and munitions under the jurisdiction, custody and control of DOD.

Since the beginning of this program, the U.S. Army Corps of Engineers has been the agency responsible for environmental restoration at Formerly Used Defense Sites (FUDS). Since 1990, the U.S. Army Engineering and Support Center, Huntsville (CEHNC) has been the Mandatory Center of Expertise (MCX) and Design Center for Ordnance and Explosives.

1.2 SUBJECT

Carrington Island Precision Bombing Range consisted of a 1,767.08 acre island within the Great Salt Lake, Utah located in Tooele County. Military use began in May 1945 when the Department of the Interior granted a use permit to the War Department for use as a radar bombing range. Carrington Island was part of the Wendover Bombing and Gunnery Range complex covering most of the Great Salt Lake Desert in western Utah. The ordnance and explosives (OE) dropped by the Air Force include: M38A2 100 pound practice bombs, 100 and 500 pound general purpose bombs, 50 pound photo flash bombs, 2.25 inch practice rockets, and incendiary cluster bombs. In the early 1950s, the Air Force established **Carrington Range**, which included Carrington Island, over the southwestern portion of the Great Salt Lake. The Air Force used the water range for a series of developmental munition dispersion tests, including prototype radiological warfare bomblets (non-active). The Air Force relinquished the use permit for the 1,225.55 acres to the Department of the Interior on 13 August 1962 and retransferred it to them on 30 August 1963. The Air Force terminated the lease on 25 May 1962. Plate 1 in the Report Plates Section shows the general location of the site.

1.3 PURPOSE

The Archives Search Report (ASR) compiles information obtained through historical research at various archives and records holding facilities, interviews with persons associated with Carrington Island Precision Bombing Range or its operations, and a team inspection of the site. The search directs efforts towards determining possible use or disposal of OE and CWM on the site. The research places particular emphasis on establishing the types,

quantities, and area of disposal. This process obtains information for use in developing recommendations for further action at the former Carrington Island Precision Bombing Range.

1.4 SCOPE

This investigation focuses on the potential that OE and/or CWM contamination could remain on the former Carrington Island Precision Bombing Range. The DERP-FUDS project number is B08UT077701. This report presents the following:

- A brief history of Carrington Island Precision Bombing Range
- Description and characteristics of the immediate surrounding area
- A review of related site investigations
- An aerial photography and map analysis of the site
- Real estate information, past and present
- Findings of the site inspection
- Description of the OE and/or CWM identified with the site

These factors represent the basis for the evaluation of potential OE and CWM contamination and associated risks at Carrington Island Precision Bombing Range.

1.5 ADDENDUM PURPOSE AND SCOPE

The archive search uncovered classified and For Official Use Only (FOUO) documents concerning activities associated with Carrington Island Precision Bombing Range. There exsists an addendum which appends the Archive Search Report Findings and Conclusions and Recommendations volumes to include information gained from those documents. Reference should be made to the Addendum volume for a comprehensive report. Additionally, the archive search team did not attempt to reclassify any document, so the classification levels may no longer be current.

2.0 PREVIOUS SITE INVESTIGATIONS

2.1 CORPS OF ENGINEERS DOCUMENTS

The Sacramento District of the Corps of Engineers prepared the following investigation of Carrington Island Precision Bombing Range in support of the DERP for FUDS (see Appendix D-1):

> Inventory Project Report (INPR) for project no. B08UT077700, Carrington Island Precision Bombing Range, Tooele County, Utah, dated July 1991.

The INPR identified only OE as a potential hazard at the former Carrington Island Precision Bombing Range.

2.2 OTHER REPORTS

The archive search did not locate any additional pertinent environmental investigations or reports concerning Carrington Island Precision Bombing Range.

3.0 SITE DESCRIPTION

3.1 LAND USE

3.1.1 Location

Carrington Island Precision Bombing Range consisted of 1,767.08 acres in Tooele County, Utah (see Plate #1). This site lays with the Great Salt Lake approximately forty miles west of Salt Lake City, Utah.

3.1.2 Prior Site Use

Prior to use by the military's operation as a bombing range, Carrington Island remained uninhabited with a grazing use attempted and abandoned in the 1930's.

3.1.3 Present Site Use

Currently land use of the former Carrington Island Precision Bombing Range remains inactive.

3.2 CLIMATIC DATA

The **Carrington Island Precision Bombing Range** has a semi-arid climate, even though it is surrounded by the Great Salt Lake. The Great Salt Lake and the mountain ranges to the north, east and south are responsible for the weather patterns in the area. Three separate mountain ranges have peaks varying from 6,000 to 12,000 feet National Geodetic Vertical Datum (NGVD) in elevation. These mountains partly shelter the Salt Lake Valley from severe winter storms, but also help develop summer thunderstorms over the area. Summers are warm, with afternoon temperatures into the 90's nearly every day from late June through early September. Temperatures in excess of 102^0F occur about one in four years and the record high for the area is 107^0F, occurring in July 1960. Although temperatures are warm, the low humidity and continuous breezes make the summer heat bearable. The Great Salt Lake moderates the temperatures of the cold winter winds and drives a lake/valley wind system. The warmer lake water also contributes to increased precipitation downwind of the lake. Winters are cold, but are not usually severe. Minimum temperatures are below freezing throughout the November through March period, but extreme low temperatures are typically moderated by the mountain barriers. Temperatures lower than -10^0F occur about one season in four and temperatures lower than this have been experienced from November through February. The record low for the area is -30^0F, occurring in February 1933.

Significant precipitation (greater than one inch) occurs in nine of the 12 months, with the wettest months during the late winter and spring when strong Pacific storms can move through the area. Annual precipitation is about 15 inches with about 85% occurring during the period from October through May, based on rainfall records at Salt Lake City National Weather Service data collection site, about 30-35 miles southeast of Carrington Island. April

is the wettest month, with about 2.2 inches average rainfall. The area receives considerable snowfall every year, with an average of 62.48 inches per year being recorded at Salt Lake City. January is the peak snowfall month with an average of 14 inches. Precipitation at the site would probably be somewhat less, as it would not receive the benefits of the "lake effect" which increases the downwind precipitation, compared to upwind areas.

Winds vary from about 7-10 miles per hour from the south-southeast throughout the year. Wind gusts up to 69 miles per hour have been recorded at Salt Lake City. Although the Salt Lake City data is representative of site conditions, wind velocities and temperatures would probably be somewhat different at Carrington Island, due to the higher site elevations and the water surrounding the site. Climatological data for the area are summarized in TABLE 3.2.

TABLE 3.2
CLIMATOLOGICAL DATA FOR
CARRINGTON ISLAND PRECISION BOMBING RANGE, UT

Month	Temperature (^{0}F)			Precipitation	Wind Velocity	Wind Direction
	Average Daily		Average Monthly			
	Min	Max	Mean	Average (Inches)	(mph)	
January	19.7	37.4	28.6	1.29	7.6	SSE
February	24.4	43.7	34.1	1.21	8.2	SE
March	29.9	51.5	40.7	1.77	9.4	SSE
April	37.2	61.1	49.2	2.06	9.6	SE
May	45.2	72.4	58.8	1.79	9.5	SE
June	53.3	83.3	68.3	0.85	9.4	SSE
July	61.8	93.2	77.5	0.74	9.6	SSE
August	59.7	90.0	74.9	0.84	9.7	SSE
September	50.0	80.0	65.0	1.05	9.1	SE
October	39.3	66.7	53.0	1.35	8.5	SE
November	29.2	50.2	39.7	1.31	8.0	SSE
December	21.6	38.9	30.3	1.32	7.4	SSE
Annual	39.3	64.0	51.7	15.63	8.8	SSE

Source: NOAA 1991, Local Climatological Data (temperature and wind) of Salt Lake City, Utah, and NWS 1994, Precipitation Data for Salt Lake City National Weather Service Forecast Office, Airport, Salt Lake County, UT.

3.3 GEOLOGY AND SOILS

3.3.1 Geology and Physiography

Carrington Island is located in the Great Basin section of the Basin and Range physiographic province. The Basin and Range province is characterized by long narrow mountain ranges, tilted fault blocks, alternating with intermountain basins partially filled with gravel and sand derived from the mountains.

The Great Salt Lake Desert is a large playa derived from the largest and by far the best known of the Pleistocene Great Basin lakes, Lake Bonneville. Present-day lakes that are remnants of Lake Bonneville are Great Salt Lake, Sevier Lake, and Lake Utah. Former levels of Lake Bonneville are indicated by shorelines and associated deltas, bars, deposits of calcareous tufa, wavecut niches in bedrock and other shoreline features, as well as sedimentary deposits consisting of gravel, sand, silt, and clay (Thornbury 1965).

Previous to the development of Lake Bonneville in Pleistocene time, the western deserts of Utah were subjected to the following: mid-Tertiary to present-day crustal stretching, resulting in normal and detachment faulting and creating the linear mountain ranges and desert basins with simultaneous infilling of intermountain basins with sediment derived from the mountains, and with volcanic outpourings; a mid-Tertiary regional uplift, with doming of the area as much as 5000 feet; igneous activity, with associated intrusions and huge volcanic outbursts, in mid-Tertiary (Eocene to early Miocene time); Cretaceous age thrust faulting, resulting in development of the Seiver Mountain belt (Chronic 1989).

The rocks exposed in this region range in age from pre-Cambrian to Recent. In Tooele County the Paleozoic rocks are exposed in the Oquirrh, Onaqui, and Cedar Mountains. The rocks are indurated limestones, schist, and slate and have many dikes of porphyry and monzonite. These beds dip at steep angles. Mesozoic rocks are not present in the region. Thick beds of soft, white, marly limestone, containing abundant fossils of Tertiary age crop out in the region (Carpenter 1913).

3.3.2 Soils

The soils of the Carrington site are deep to shallow and well drained. The soils formed from alluvium that was derived from limestone, quartzite, and lacustrine sediments. The soil is covered with a thin veneer of alkali from the ancient Lake Bonneville. Under the surface layer is grayish brown and brown, stony and very gravelly, sandy silty clay about 10 inches deep. The subsoil layer consists of pale brown, gravelly, sandy silty clay to a depth of 20 inches. The lower subsoil layer is composed of very pale brown, very gravelly, sandy silty clay to a depth over 60 inches. The permeability of the soil is moderately rapid, the

available water capacity is moderate, and runoff is medium. Bedrock may be encountered at depths shallower than 60 inches. The potential for frost extends to a depth of 18 inches.

3.4 HYDROLOGY

3.4.1 Surface Water

Carrington Island is dominated by a peak rising to 4,727 feet NGVD, about 535 feet above the normal water level of the Great Salt Lake. Surface runoff occurs in all four directions, from the peak to the lake. No discernible surface streams are visible from map inspection. Drainage paths would be dry at all times, except during significant rainfall events or during snow melt runoff. No hydrologic data exists for any portion of the site.

3.4.2 Ground Water

Because Carrington Island is located in the middle of the Great Salt Lake, it is literally shut off from the large quantities of useable ground water which can be developed from wells tapping the basin fill sediments. The entire great Salt Lake basin is filled with abundantly productive aquifers in the basin fill sediments.

Ground water can be found in the carbonate rocks of the island, but the water is from the water table aquifer and will be greatly influenced by the Great Salt Lake itself. This water is of very saline and of poor quality.

Water which is pooled on the island or any precipitation which falls on the island directly permeates into the surrounding Great Salt Lake basin. Water flows through the carbonate rocks into the finer grained sediments.

3.5 ECOLOGY

The information on the endangered and threatened species for this site has been provided by the U.S. Fish and Wildlife Service (USFWS). A request was made to the Utah Department of Natural Resources for a list of state-listed species but one was not provided.

The USFWS provided a list of federal candidate, threatened, and endangered species occurring in Tooele County, Utah. The following species may occur on the Carrington Island: California floater (Anodonta californiensis), candidate; least chub (Iotichthys phlegthontis), candidate; Booneville cutthroat trout (Oncorhynchus (=Salmo) clarki), candidate; spotted frog (Rana pretiosa), candidate; pygmy rabbit (Brachylagus idahoensis), candidate; spotted bat (Euderma maculatum), candidate; North American lynx (Felis lynx canadensis), candidate; North American wolverine (Gulo gulo luscus), candidate; small-footed myotis (Myotis ciliolabrum), candidate; long-eared myotis (Myotis evotis), candidate; fringed myotis (Myotis thysanodes), candidate; long-legged myotis (Myotis volans), candidate; pale Townsends big-eared bat (Plecotus townsendii pallescens), candidate; Stansbury Island harvest mouse (Reithrodontomys megalotis ravus), candidate; Preble's

shrew (Sorex preblei), candidate; Booneville southern pocket gopher (Thomomys umbrinus bonnevillus), candidate; Stansbury Island pocket gopher (Thomomys umbrinus minimus), candidate; Skull Valley pocket gopher (Thomomys umbrinus robustus), candidate; northern goshawk (Accipiter gentilis), candidate; western burrowing owl (Athene cunicularia hypugea), candidate; ferruginous hawk (Buteo regalis), candidate; mountain plover (Charadrius montanus), candidate; black tern (Chlidonias niger), candidate; peregrine falcon (Falco peregrinus), endangered; bald eagle (Haliaeetus leucocephalus), endangered; white-faced ibis (Plegadis chihi), candidate; Columbian sharptail grouse (Tympanuchus phasianellus columbianus), candidate; Pohl's milkvetch (Astragalus lentiginosus var. pohlii), candidate; Kass's whitlow-grass (Draba kassii), candidate; and Ute ladies' -tresses (Spiranthes diluvialis), threatened.

No additional information on the occurrence of rare or endangered species or natural communities is known at this time. This does not mean that other state or federally-listed species may not be present within the areas of interest. An on site inspection by appropriate state and federal personnel may be necessary to verify the presence, absence or location of listed species, or natural communities if remedial action is recommended as part of the final ASR.

3.6 DEMOGRAPHICS

3.6.1 Centers of activity

Carrington Island Precision Bomb Range is located on Carrington Island in the Great Salt Lake approximately 40 miles northwest of Salt Lake City, Utah. The site is in Tooele County, of which Tooele City is the county seat and the center of population for the county. Tooele City is approximately 32 miles south of the Carrington Island.

3.6.2 Business and Industry Profile

Based on the total of 335 establishments in Tooele County, the breakdown of industry is as follows:

-Manufacturing	3.3%
-Agriculture	1.2%
-Services	31.9%
-Trade and Finance	42.7%
-Other	20.9%

Of the people in the county employed by businesses, about 39.9 percent are employed by the trade and finance businesses. Also prominent are the service businesses with about 23.2 percent as well as the transportation business with 12.6 percent. Construction businesses employ 8.9 percent, mining businesses employ 7.8 percent, manufacturing businesses employ 6.9 percent, and 0.7 percent are employed by other businesses. Foregoing percentages are at mid-March 1993.

3.6.3 Population density

Location	Population	Area (Square Miles)	Population Density (Square Miles)
Tooele City	13,887	N/A	N/A
Tooele County	29,200	6,919	4.2

3.6.4 Types of Housing

Housing in Tooele is composed mostly of single family dwellings with some apartment buildings and trailers. The median value of the 3,606 specified owner-occupied housing units in Tooele is $59,800.

3.6.5 New Development in the Area

This area is experiencing growth in residential dwellings as people move to the area from Salt Lake City.

3.6.6 Typical Cross Sections of the Population

The following is a cross section of the population:

-White	94.0%
-Black	0.6%
-American Indian/Eskimo/Aleut	0.8%
-Asian/Pacific Islander	0.9%
-Other	3.7%

The percent of the total population (of any race) that is of Hispanic origin is 11.3%. The part of the population under the age of 18 is 33.5% and the part over the age of 65 is 11.0%. The median age is 30.5 years.

4.0 SITE HISTORY

4.1 HISTORICAL SITE SUMMARY

In early 1945, the Army Air Forces requested the acquisition of **Carrington Island** for a radar bombing range for use by Wendover Field, Utah (Headquarters Army Air Forces 1945). On 3 May 1945 the Department of the Interior, Bureau of Land Management granted the War Department the 1,225.55 acres of Carrington Island in public domain (U.S. Army Corps of Engineers 1963). The military acquired the remaining 541.33 acres of Carrington Island by lease (see Section 5.1). Historical documents refer to the site as:

Carrington Island Radar Scoring Target #2 (U.S. Army Air Corps-Wendover Field 1947)
Practice Bombing Range (Carrington Island Range) (Department of the Army 1949)
Carrington Island Bombing Range (Wendover Air Force Base 1950)
Natural Radar (Carrington Island) (U.S. Air Force 1950)
Radar Demolition Target No. 1 (Carrington Island) (U.S. Air Force-Headquarters Fifteenth Air Force 1950)
Carrington Island Precision Bombing Range (U.S. Army Corps of Engineers 1963)

Carrington Island Precision Bombing Range was part of the Wendover Bombing and Gunnery Range complex, which covered most of the Great Salt Lake Desert in western Utah. On 31 December 1945, jurisdiction for the Wendover airfield and range complex passed from the Second Air Force to Air Technical Command, later Air Material Command (AMC) for weapons testing and development. On 16 March 1947, the Strategic Air Command took over Wendover Air Force Base. On 1 July 1950 the base, except for the bombing range, transferred to the AMC. (U.S. Air Force Historical Division 1956).

In the early 1950s, the Air Force established **Carrington Range**, a water range which included Carrington Island. Carrington Range covered the southwestern portion of the Great Salt Lake (see Appendix K-1). The Army Chemical Corps erected a series of ten permanent range markers in the water about 8 miles northwest of the island. The Chemical Corps along with the Air Force used the water range for a series of developmental munition dispersion tests. (Ralph H. Parsons Company 1953, U.S. Army Chemical Corps 1953). Some of the dispersion studies focused on prototype radiological warfare bomblets dropped in clusters over Carrington Range in the early 1950's. Photography was taken of the distribution patterns in the water to analyze the dispersion of the bomblets (U.S. Army Chemical Corps 1952). A classified addendum exists to this archive search report that details specifics of different developmental munitions tests at Carrington Range. All the evidence the archive search uncovered indicates that Carrington Range was **only used for dispersion tests**. The archive search uncovered **no** evidence that the munitions tested at Carrington Island Precision Bombing Range or the Carrington Range contained active biological simulants, pathogens or radiological agents.

The Air Force relinquished the use permit for the 1,225.55 acres to the Department of the Interior on 13 August 1962 and retransferred it to them on 30 August 1963. The Air Force terminated the lease for the private property on 25 May 1962 (U.S. Army Corps of Engineers 1963).

4.1.1 Summary of Conventional Ordnance Explosive Activities

The Standard Operating Procedures for Wendover Bombing and Gunnery Range in 1947 restricted bombing use of Carrington Island to **M38A2 100 pound practice bombs**. The improvements to the site included a 200 feet by 50 feet wide, white cross at the geographical center of the island (U.S. Army Air Corps-Wendover Field 1947). In 1949, the Air Force dropped **100 pound and 500 pound General Purpose (GP) bombs** on Carrington Island, recommending the use of 500 pound bombs for spotting when snow covered the area (U. S. Air Force 1949a). Also in 1949, the Air Force listed Carrington Island available for night photography (photo flash bombs) practice (U. S. Air Force 1949b). By July 1950, the Air Force approved the use of up to 2,000 pound GP demolition bombs and all classes of chemical incendiary bombs on Carrington Island. Scoring was assessed by photographs taken from aircraft during the bombing runs (U.S. Air Force-Headquarters Fifteenth Air Force 1950). Debris found during the site inspection verified the use of **50 pound photo flash bombs M46, 2.25 inch practice rockets, and M67 incendiary bombs (gelled gas filled)**. The team also discovered a **.50 caliber cartridge** case along the beach.

4.1.2 Summary of Chemical Warfare Material Activities

The archive search uncovered **no** documentation relating to CWM at Carrington Island Precision Bombing Range. The archive search team found no indication that Carrington Island Precision Bombing Range conducted CWM testing, training, storage, or disposal.

4.1.3 Summary of Biological Warfare (BW) Activities

Prototype biological bomblets filled with dye washed up on Carrington Island in the mid-1960s (Van Atta 1979). A classified addendum exists to this archive search report that details specifics of the munition dispersion tests conducted at Carrington Range. The archive search uncovered **no** documentation relating to any testing or release of pathogenic or active biological simulants at Carrington Island Precision Bombing Range or the Carrington Range.

4.1.4 Summary of Radiological Warfare (RW) Activities

As part of the dispersion studies performed at Carrington Range in the early 1950s, the Chemical Corps in association with the Air Force dropped prototype radiological warfare bomblets in clusters over the range. The bomblets varied in size from 2 3/4 to 3 inches with both smooth and ribbed versions tested. The spheres created a distribution pattern when they struck the water. Photography of these patterns allowed the Chemical Corps to analyze the dispersion for these munitions without using active radiological agents (U.S. Army Chemical Corps 1952). A classified addendum exists to this archive search report that details specifics

of different developmental munitions tests at Carrington Range. All the evidence the archive search uncovered indicates that Carrington Range was **only used for dispersion tests**. The archive search uncovered **no** evidence that the munitions tested at Carrington Island Precision Bombing Range or the Carrington Range contained contained active radiological agents.

4.1.5 Certificates of Clearance

On 26 April 1962, members of the 2701st Explosive Ordnance Squadron at Hill Air Force Base completed a clearance of Carrington Island "of all dangerous and/or explosive ordnance material and residue reasonably possible to detect to a depth of 12 inches." (2701st EOD 1962). The 2701st Explosive Ordnance Squadron issued a second Certificate of Clearance on 7 March 1963 based on clearing the island "of all explosive ordnance material and ordnance residue reasonably possible to detect" (2701st EOD 1963), note the lack of the 12 inch limiting disclaimer. The site inspection verified that large amounts of ordnance debris remains on the island following these clearances.

4.2 REVIEW OF HISTORICAL RECORDS

Appendix A contains full references of all in text citations along with the location of the copied document. Concentration in three areas directed the research methodology for this report:

- locating documentation concerning the military use of the site
- compiling the types, quantities and probable locations of OE and/or CWM used by the military
- collecting real estate information

Researchers searched at the following locations for records relating to OE and CWM activities at Carrington Island Precision Bombing Range. At these repositories the research team used finding aids and records managers to assist in locating documents relevant to the research topic. The ASR team accumulated complimentary documents reviewed on Carrington Island Precision Bombing Range, but not specifically used, with the original ASR documents. Unless otherwise noted, the reviewed material contained no pertinent information on Carrington Island.

National Archives - Archives II
8601 Adelphi Road
College Park, MD 20740
POC: Ken Schlessinger
(301) 713-6800

Record Group 18 (Records of the Army Air Forces)
Entry 2 Air Adjutant General - Decimal File June 1944 - 46.
Box 2273 Texas thru Virginia.

Box 2304 Decimal 686 Texas thru Utah. Documents on acquisition of Radar Bombing Range, Carrington Island, UT.

Box 2332 Decimal 686 Texas thru Vermont. Request for clearance of danger areas near Wendover.

Entry 2C December File 1947

Box 2794 Folder 684. Map on Wendover Bombing and Gunnery Range 1943. Carrington Island is shown on map.

Entry 292 Central Decimal Files October 1942 - 44.

Box 1595 Wayne, NE thru Westover, MA. Building list for Wendover Field, Utah.

Entry 294

Box 979 Webster, NY thru West NY State.

Record Group 77 (Records of the Chief of Engineers)

Entry 1011

Box 251 Carrabelle, FL thru Carrizo Springs, TX.

Box 853 US Tool Company thru Camp Van Dorn.

Box 865 Weldon Springs thru West Point.

Record Group 92 (Records of the Office of Quartermaster General)

Entry General Correspondence, 1936 - 1945

Box 57, Utah - Yuma, AZ.

Record Group 107 (Records of the Secretary of War)

Aviation Fields & Bombing Ranges

Box 133 T thru Z. Document on radar bombing at Carrington Island.

Box 212 Texas thru Virgin Islands.

Record Group 112 (Records of the Surgeon General)

Entry WW II Administration Records, 314.7

Box 268, 314.7-2, History of Biological Warfare as it relates to the Surgeons General Office

Record Group 121 (Records of the Public Buildings Service)

Entry NN3-121-94-001 (formerly WNRC 121-54A-0567) Office of Real Property Review Board Files

Box 6 Tennessee to Wyoming.

Record Group 156 (Records of the Chief of Ordnance)

Entry 1128B

Box K522, Company Files

Box K730, Company Files

Record Group 175 (Records of the United States Army Chemical Warfare Service)

Entry General Correspondence, Station Series, 1955 - 1959

Box 4, Decimal Correspondence, Camp Detrick, MD, 121.2 - 2503.312

Box 5, Decimal Correspondence, Camp Detrick, MD, 313-334 - 470.1
Box 6, Decimal Correspondence, Camp Detrick, MD, x references - Army Chemical Center (Corresopndence on the Ralph Parsons Corp (Contractor associated with Carrington Island, UT testing)
Box 13, Decimal Correspondence, NYCPD to Dugway Proving Grounds, UT, 000.5
Box 14, Decimal Correspondence, Dugway Proving Grounds, UT, 121.2 - 248-321
Box 15, Decimal Correspondence, Dugway Proving Grounds, UT, 321.011 - 353 and x references
Box 16, Decimal Correspondence, Air Bases to Dugway Proving Grounds, UT
Box 29, Decimal Correspondence, Memphis - Fort Detrick, MD, 121.6 - 211
Box 30, Decimal Correspondence, Fort Detrick, MD, 220.1 - x references
Box 31, Decimal Correspondence, Fort Detrick, MD References - Presidio
Box 32, Decimal Correspondence, Atlanta - Dugway Proving Grounds, UT, 000.7
Box 33, Decimal Correspondence, Dugway Proving Grounds, UT, 121.2 - 253.5
Box 34, Decimal Correspondence, Dugway Proving Grounds, UT, 220.01 - 400.7
Box 44, Decimal Correspondence, Army Chemical Center - Fort Detrick, MD, 121.00
Box 45, Decimal Correspondence, Fort Detrick, MD, 121 - 461 end
Box 46, Decimal Correspondence, Fort Detrick, MD - NYPCD
Box 47, Decimal Correspondence, San Francisco CPD - Dugway Proving Grounds, UT, 230.2
Box 48, Decimal Correspondence, Dugway Proving Grounds, UT, 240 - 302 - x references
Box 58, Decimal Correspondence, Army Chemical Center - Fort Detrick, MD, 141 - 220
Box 59, Decimal Correspondence, Fort Detrick, MD, 230 - 337 - Proving Grounds Miscellaneous
Box 61, Decimal Correspondence, Dugway Proving Grounds, UT 413 - x references
Box 63, Decimal Correspondence, Army Chemical Center - Fort Detrick, MD, 000 - 210
Box 64, Decimal Correspondence, Fort Detrick, MD, 230 - 337 - Proving Grounds Miscellaneous

Entry 67A4900
Box 290, Camp Detrick, MD, Funds Allotment Files, 1946
Box 291, Deseret Chemical Depot, UT, (4 Folders on making Deseret a Depot)

Box 300, Dugway Proving Grounds, UT (14 folders on meteorigical Facilities)
Box 308, Camp Detrick, MD, Cost Analysis Files, 1946 - 1947
Box 309, Deseret Chemical Depot, UT (3 Folders of Personnel Cost Estimates)
Box 311, Dugway Proving Grounds, UT (1 Folder)
Box 315, Camp Detrick, MD (2 Folders of Personnel Correspondence, 1948
Box 316, Deseret Chemical Depot (1 folder)
Box 317, Army Chemical Center
Box 320, Deseret Chemical Depot (1 folder)
Box 321, Camp Detrick, MD, General Correspondence, 1950
Box 326, Dugway Proving Grounds, UT, 1951
Box 329, Camp Detrick, MD (6 folders)
Box 316, Deseret Chemical Depot (1 folder)
Box 335, Dugway Proving Grounds, UT (Copied 1 document on markers for the Carrington Range)
Box 338, Camp Detrick, MD, Research and Development Files, 1953
Box 343, Camp Detrick, MD, 1954
Box 350, Dugway Proving Grounds, UT, 1946 (4 folders)
Box 352, Dugway Proving Grounds, UT, 1947
Box 353, Camp Detrick, MD, 1949
Box 354, Camp Detrick, MD (2 folders)
Box 356, Camp Detrick, MD, 1951 (4 folders)
Box 359, Camp Detrick, MD, 1951
Box 360, Camp Detrick, MD, 1946 - 51
Box 361, Camp Detrick, MD, 1947

Record Group 291 (Records of the General Services Administration)
Accession 66A-2712
Box 194, Property Disposal Files (1 Folder on Wendover AFB, UT, 1 document copied on non disposal of Carrington Island Range)

Record Group 319 (Records of the Army Staff 1939-)
State Decimal File 1922 - 45
Box 523

Record Group 341 (Records of the Headquarters United States Air Force)
Air Force Real Estate Facilities 1948-55
Box 47 Vidalia-Lyons thru Williams 1948.
Box 111 Washington National thru Wold Chamberlain. One folder on Wendover Field, UT. One document on Carrington Island, UT.
Box 178 Wendover thru Wright Patterson.
Box 263 Walker thru Wichita. Document on Wendover Bombing and Gunnery Range. One document on underground explosion tests at Wendover Bombing & Gunnery Range.

Box 364 Wendover thru Williams. Document about Carrington Island in connection with Wendover Bombing and Gunnery Range.
Box 477 Walker thru Wichita. One folder on Wendover, UT 1953. One document on Radar Demolition Target No. 1 (Carrington Island 1953).
Box 598 Walker thru Wilkins. Document on bomb craters at Wendover Range.
Box 737 Walker Field thru Williams. One folder on Wendover. Documents on Wendover Bombing Range.

Record Group 407 (Records of the U. S. Army Adjutant General)
Entry: Unclassified Adjutant General Files, 1940 - 1945
Box 4521, General Correspondence on U. S. Cities
Entry: Project Decimal Files, 1940 - 1945
Box 4353, General Correspondence (2 folders on Dugway Proving Grounds, UT and 1 folder on Wendover Bombing Range)

National Archives - Archives II, Cartographic Center
8601 Adelphi Road
College Park, MD 20740
POC: Reference Archivist
(301) 713-6885

Record Group 30 (Records of the Bureau Public Roads)
Record Group 77 (Records of the U.S. Army Corps of Engineers)
Photo maps of Wendover Army Airfield, UT.

National Archives (I)
8th & Pennsylvania
Washington, D.C. 20408
POC: Richard Peuser
(202) 501-5671

Record Group 77 (Records of the Chief of Engineers)
Construction Completion Reports 1917 - 1943
Box 325 Weldon Springs thru West Point.
Project Files: Air Fields 1939-42
Box 1840 Wendover Field. Miscellaneous information on Wendover Bombing Range.

National Archives
Suitland Reference Branch
4205 Suitland Road
Suitland, MD 20409
POC: Richard Boylan
(301) 457-7180

Record Group 341 (Headquarters U.S. Air Force)
Entry 494 Air Force Real Estate Facilities 1948 - 1955
Box 2 Subject Aircraft 1948 to Subject Construction 1948, folder Bombing and Gunnery ranges, document on demolition and practice bombing, Wendover Bombing and Gunnery Range, UT.

Washington National Records Center
4205 Suitland Road
Suitland, MD 20409
POC: Velecia Chance
(301) 457-7010

Record Group 77 (Records of the Chief of Engineers)
Accession 52A-0259 Geographic and Project Files
Box 15 California Quartermaster Depot thru Camp Carson.
Box 101 Weldon Springs thru Wesleyan.
Accession 53A-0325
Box 15
Accession 77-54A-0006
Box 41/43 323.3 Turkey to 461 Weapons Effects Handbook
Accession 77-54A-0009
Box 6/9 400.112 Chemical Corps (1950 Chem. Corps R+D) to 400.112 Engineering Board (1949 R+D Quarterly Reports)
Box 7/9 400.112 Explosives to 400.314 V.II
Box 8/9 400.314 to 600.04
Accession 77-A55-0323 (OCE/GEO 1951-52)
Box 15 Campbell AB to Carswell AF
Record Group 175 (Records of the United States Army Chemical Warfare Service)
Accession 60A-1250
Box 60, Personnel Files, 1957
Box 61, Research and Development Files, 1957
Box 62, Personnel Orders, 1957
Box 63, Research and Development Files, 1957

Record Group 291 (Records of the Property Management and Disposal Service)
Accession 68A-5714
Box 310, (Property Disposal Files, contains 2 folders on Wendover AFB, UT, Alleyway disposal files)
Accession 70A-6643
Box 48, (Property Disposal Files, contains 1 folder on Dugway Proving Grounds, UT, school buildings and flagpole files)

Record Group 338 (Records of the United States Army Commands)
Accession 63A-1665
Box 1 through 4 of 4, Army Industrial Fund, Ft. Detrick, MD

Accession 69A-0738
Box 1 of 5, Ft. Detrick, MD, Organization Planning Files
Box 2 of 5, Ft. Detrick, MD, General Correspondence
Box 3 of 5, Ft. Detrick, MD, Patents, 1965
Box 4 of 5, Ft. Detrick, MD, University Experimental Reports
Box 5 of 5, Ft. Detrick, MD, Research and Development Files
Accession 69A-0739
Box 3 of 6, Ft. Detrick, MD, St. Jo Programming Files
Box 4 of 6, Ft. Detrick, MD, Manuscript Files
Box 5 of 6, Ft. Detrick, MD, Technical Reports, 1968
Box 6 of 6, Ft. Detrick, MD, Technical Reports
Accession 69D-0739
Box 1 of 1, Ft. Detrick, MD, Exercise Files, 1965-67
Accession 69F-0739
Box 1 of 2, Ft. Detrick, MD, Simulant Tests, 195?
Accession 75A-0156
Box 1 of 2, Ft. Detrick, MD Technical Rpts., 1971-75
Box 2 of 2, Ft. Detrick, MD Agroclimatic Studies,1970

Record Group 341 (Records of the Headquarters of the U.S. Air Force)
Accession 341-60-A1411 (Air Force Production Division Industrial Readiness Branch)
Boxes 1-20/20 Mission Records, Case Files, and Statements of Necessity

National Personnel Records Center
Military Personnel Records
9700 Page Avenue
St Louis, Missouri 63132-5100
POC: Wilson Sullivan
(314) 538-4085

Record Group 338 (Records of the U. S. Army Commands)
Accession 56A-3068
Box 1 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 000.7 - 201.7
Box 2 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 210 - 300.4
Box 3 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 300 - 314.81
Box 4 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 315 - 323.3
Box 5 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 323.3 - 350.001
Box 6 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 350.3 - 411.4

Box 7 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 411.5 - 536
Box 8 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 537.5 - 680.2
Box 9 of 9, Ft. Detrick, MD, Post Administrative Correspondence, Decimal 001 - 384.51

Accession 56B-3068
Box 1 of 1, Ft. Detrick, MD, Topic Files, Special and General Orders, and Historical Reports

Accession 56C-3068
Box 1 of 1, Ft. Detrick, MD, Post Memoranda and Individual Personnel Files

Accession 56E-3068
Box 1 of 1, Ft. Detrick, MD, Decimal Correspondence, 400.112 - 729.3

Accession 56B-3069
Box 1 of 1, Ft. Monroe, VA Topical Correspondence

Accession 58J-0077
Box 1 of 6, Ft. Detrick, MD, Technical Reports done by Long Island, NY, University of Texas, University of California, and Duke University
Box 2 through 6 of 6, Ft. Detrick, MD, Technical Reports done by various universities

Accession 58J-0077
Box 1 of 5, Ft. Detrick, MD, Technical Reports done by University of MD, Iowa State College, IA, Universal Match Corporation and Animal Test Cards
Box 2 of 5, Ft. Detrick, MD, Technical Reports done by Milipore Corporation, Watertown, MA, Aeroprojects Inc., Westchester, PA, Bucknell University, Lewisburg, PA, University of Michigan, Ann Arbor, MI, and Animal Test Cards
Box 3 of 5, Ft. Detrick, MD, Correspondence of Scientific Topics and Progress Reports at Northern Utilization Branch, Peoria, IL
Box 4 of 5, Ft. Detrick, MD, Technical Reports on Grinding of Fine Particles and other topics
Box 5 of 5, Ft. Detrick, MD, Technical Reports done by University of MD, on Wind Tunnels and other Correspondence

Accession 59A-3322
Box 1 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, 000.7 - 140
Box 2 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, 141.81 - 210.86
Box 3 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, 220 - 313.7
Box 4 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, Box is divided into 2 parts, Part 1 is Administrative Correspondence, 315 - 334, Part 2 is Engineer Division Correspondence, 001.2 - 729 Miscellaneous

Box 5 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, 335 - 400.111
Box 6 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, 400.112 Dugway Proving Ground - 444.5 Laboratory
Box 7 of 7, Ft. Detrick, MD, Topical Decimal Administrative Correspondence, by Decimal and University Name, 141.81 - 210.86)

Accession 59B-3322

Box 1 of 1, Ft. Detrick, MD, Box is divided into 2 parts, Part 1 is Topical Decimal Administrative Correspondence 200.3 - 333.5 and 702 - 742, Part 2 is Special Orders, Daily Bulletins, Post Memorandums, Letters (not numbered), and General Orders

Accession 59C-3322

Box 1 of 1, Ft. Detrick, MD, Topical Administrative Correspondence

Accession 59D-3322

Box 1 of 1, Ft. Detrick, MD, Biological Warfare Laboratory Testing Manuscripts 1301 - 1400, Historical Reports, 1954 - 1955, and Topical Personnel Correspondence

Accession 59E-3322

Box 1 of 1, Ft. Detrick, MD, Biological Warfare Laboratory Testing Manuscripts 1401 - 1500

Accession 59F-3322

Box 1 of 1, Ft. Detrick, MD, Decimal Correspondence, 001 - 380.01

Accession 59G-3322

Box 1 of 1, Ft. Detrick, MD, Administrative Correspondence on Security Matters and Wherry Housing

Accession 59H-3322

Box 1 of 2, Ft. Detrick, MD, Correspondence on Engineering Tests
Box 2 of 2, Ft. Detrick, MD, Correspondence on Engineering and Object Tests

Accession 59I-3322

Box 1 of 1, Ft. Detrick, MD, Topical Correspondence

Accession 59J-3322

Box 1 of 1, Ft. Detrick, MD, Topical Correspondence and Administrative Files

Accession 59K-3322

Box 1 of 1, Ft. Detrick, MD, Box divided into two parts, Part 1 is Topical Decimal Correspondence, 230.341 - 400.12, Part 2 is Topical Research Correspondence, listed by Private Corporation Name

Accession 59L-3322

Box 1 of 1, Ft. Detrick, MD, Topical Research Correspondence, listed by Private Corporation Name

Accession 59M-3322

Box 1 of 1, Ft. Detrick, MD, Topical Correspondence, of note was correspondence on biological field testing at Avon Park, FL and the country of Vietnam

Accession 59N-3322

Box 1 of 1, Ft. Detrick, MD, Topical Correspondence and Administrative Files

Accession 59O-3322

Box 1 of 1, Ft. Detrick, MD, Topical Administrative Correspondence

Accession 59P-3322

Box 1 of 1, Ft. Detrick, MD, Topical Decimal Correspondence, 110.01 - 353.41

Accession 59R-3322

Box 1 of 1, Ft. Detrick, MD, Topical Correspondence and two folders of 1950's Historical Reports

Accession 60C-0147

Box 1 of 2, Ft. Detrick, MD, 1956, Box is in 2 parts, part 1 is Administrative Correspondence by Topic and Series s 1-90, part 2 is Motor Vehicle Accident and First Aid Correspondence, Topical

Accession 60E-0147

Box 1 of 2, Ft. Detrick, MD, 1956, Box is in 2 parts, part 1 is Correspondence of the Applied Science Division, by Decimal s 072-380, part 2 is Correspondence of the Crops Division, Topical, no order

Box 2 of 2, Ft. Detrick, MD, 1956, Box is in 2 parts, part 1 is Correspondence of the Crops Division, Topical, no order, part 2 is Laboratory Correspondence (Note: contains information on Field Tests at Avon Park, FL)

Accession 60F-0147

Box 1 of 1, Ft. Detrick, MD, Management Program Documents of Various Offices

Accession 60G-0147

Box 1 of 1, Ft. Detrick, MD, Manpower Surveys of Various Offices

Accession 61C-3208

Box 1 of 1, Ft. Detrick, MD, 1957, Box is divided into 2 parts, part 1 is Accident Reports of Ft. Detrick, MD and Pine Bluff Arsenal, AK, part 2 is Equipment and Sewage Testing Correspondence

Accession 61E-3208

Box 1 of 1, Ft. Detrick, MD, 1957, Medical, Hospital and Historical Division Correspondence

Accession 61H-3208

Box 1 of 1, Ft. Detrick, MD, 1956, Manpower Surveys Reports of Various Offices

Accession 63G-0020

Box 1 of 1, Ft. Detrick, MD, Correspondence on Laboratory Testing, by ER number, Unordered

Accession 63C-4062

Box 1 of 1, Ft. Detrick, MD, 1958, Progress Analysis Files, Cost and Performance Data

Accession 64A-0066

Box 1 of 2, Ft. Detrick, MD, Security Correspondence Files, Decimal s 250/6, 250/7, 250/15 and 274/16

Box 2 of 2, Ft. Detrick, MD, Box is divided into 3 parts, part 1 is Security Termination and Administration Correspondence, Decimal numbers 274/110 and 274/114, part 2 is Security Downgrade Correspondence, Series 3-50, part 3 is Procurement Correspondence, Decimal numbers 250/5, 250/6, 274/36, 280/7 and 504-2

Accession 64B-0066

Box 1 of 22, Ft. Detrick, MD, University Scientist and Correspondence Folders, by Scientist and Contract

Box 2 of 22, Ft. Detrick, MD, University Scientist and Correspondence Folders, by Scientist and Contract

Box 3 of 22, Ft. Detrick, MD, In two parts, part 1 is University Scientist and Correspondence Folders, by Scientist and Contract , part 2 is Purdue University and McBean Corp. Contract files. One folder was about agent U/L

Box 4 of 22 Ft. Detrick, MD, Correspondence on dry runs for agent U/L and with the U.S. Department of Agriculture

Box 5 of 22, Ft. Detrick, MD, Box is in 2 parts, part 1 is Correspondence with the U.S. Department of Agriculture, part 2 is Correspondence with the Massachusetts Institute of Technology (MIT) and MIT Technical Reports

Box 6 of 22, Ft. Detrick, MD, Box is in 2 parts, part 1 is Correspondence with the Universities of Texas and Wisconsin, part 2 is Bowen Construction Co. drawings and contracts

Box 7 of 22, Ft. Detrick, MD, Box is in 2 parts, part 1 is Bowen Construction Co. drawings and contracts, part 2 is Correspondence and Reports of the General Mills Corporation

Box 8 of 22, Ft. Detrick, MD, Box is in 3 parts, part 1 is Administration Decimal Correspondence, not in order, part 2 is project case files, part 3 is miscellaneous correspondence

Box 9 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 14-55 to 62-55

Box 10 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 63-55 to 80-55

Box 11 of 22 Ft. Detrick, MD, Project Order Folders by ER numbers, 81-55 to 107-55

Box 12 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 109-55 to 118-55 and 3 large contract folders

Box 13 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 123-55 to 133-55

Box 14 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 1-56 to 23-56

Box 15 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 24-56 to 52-56

Box 16 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 53-56 to 100-56

Box 17 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 101-56 to 12-57

Box 18 of 22 Ft. Detrick, MD, Project Order Folders by ER numbers, 14-57 to 53-57

Box 19 of 22, Ft. Detrick, MD, Project Order Folders by ER numbers, 1-58 to 42-58

Box 20 of 22, Ft. Detrick, MD, Box is in 2 parts, part 1 is Project Order Folders by ER s, 43-58 to 56-58, part 2 is Research and Development Case Files and Technical Reports

Box 21 of 22, Ft. Detrick, MD, Correspondence by University and Private Company

Box 22 of 22, Ft. Detrick, MD, Correspondence by University and Private Company

Accession 64A-0108

Box 1 of 1, Ft. Detrick, MD, 1960, Security Correspondence, Decimal numbers 250/6 to 274/6

Accession 78-0289

Box 17 of 27, Ft. Detrick, MD, CLASSIFIED, contains Unclassified File Titles on technical reports for contract # DA-18-064-2104 and financial reports

Accession 78-0294

Box 1 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-001 - 4-04-14-002

Box 2 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-013, 4-04-14-014, 04-14-021, also contains Unclassified File Titles on BW aerosol dispensers

Box 3 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-021 and 4-04-14-022, and Unclassified File Titles on BW guided missile weapons

Box 4 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-022, and Unclassified File Titles on St. Jo Project

Box 5 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-022 - 4-04-14-023

Box 6 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-022 - 4-04-14-023, also contains Unclassified File Titles on technical reports on anticrop pathogen experiments at Avon Park, FL and Dugway Proving Grounds, UT, and balloon BW technical reports

Box 7 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-001 - 4-04-14-026

Box 8 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-026

Box 9 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-026

Box 10 of 31, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1955-56, CLASSIFIED, Project 4-04-14-026

Accession 78-0295

Box 10 of 65, Ft. Detrick, MD, Program Coordination Office, Research and Development Case Files, 1954, CLASSIFIED, Folders on the R. M. Parsons Company, also contains Unclassified File Titles on Aerosol Clouds in Cities, Winnipeg, Canada

Box 11 of 65, Ft. Detrick, MD, Program Coordination Office, Research and Development Case Files, 1954, CLASSIFIED, Folders on the R. M. Parsons Company, also contains Unclassified File Titles on Aerosol Clouds in Cities, Minneapolis, MN

Box 12 of 65, Ft. Detrick, MD, Program Coordination Office, Research and Development Case Files, 1954, CLASSIFIED, Folders on the R. M. Parsons Company, also contains Unclassified File Titles on Aerosol Clouds in Cities, Minneapolis, MN and Winnipeg, Canada, and technical reports for BW effects on monkeys, guinea pigs, and mice

Accession 78-0296

Box 48 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, also contains Unclassified File Titles on quarterly technical reports, BW munitions development 1953, 1954, and 1955 including Carrington Island Project 4-04-14-008 (Documents copied)

Box 49 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, also contains Unclassified File Titles on quarterly technical reports, BW munitions development 1953, 1954, and 1955 including Carrington Island Project 4-04-14-008 (Documents copied)

Box 50 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, quarterly technical reports, BW munitions development 1953, 1954, and 1955 including Carrington Island Project 4-04-14-008, also contains Unclassified File Titles on Aerosol Clouds in Cities, St. Louis, MO and Minneapolis, MN (Documents copied)

Box 51 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, also contains Unclassified File Titles on Aerosol Clouds in Cities, St. Louis, MO and Minneapolis, MN

Box 52 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, also contains Unclassified File Titles on Aerosol Clouds in Cities, St. Louis, MO and Minneapolis, MN
Box 53 of 65, Ft. Detrick, MD, Munitions Development Division, Research and Development Case Files, 1952-56, CLASSIFIED, Files on R. M. Parsons, Contract 2283, also contains Unclassified File Titles on quarterly technical reports on experimental BW munitions reports including testing at Holloman AFB, NM, Dugway Proving Grounds, UT, and Bonneville Flats, UT

Record Group 342 (Records of the US Air Force Commands)

Accession 44B-6005

Box 1/1 Two folders of decimal 684 (Bombing and Gunnery Ranges) at Wendover.

Accession 50C-3003

Box 24/24 Folder 614, Contains 1950 Range Document on Carrington Island.

Accession 52A-6012

Box 42/42 Documents on 500 pound bombs and photo flash bombs at Carrington Island.

Accession 53B-4011

Box 9/9 Wendover Bombing and Gunnery Range.

Accession 54Q-0640

Box 8/10 Wendover General Correspondence 1950.

Accession 55F-5042

Box 5 of 24 Facility and lease correspondence on Wendover.

Accession 62B-1115

Box 37/39 One folder on Wendover.

U. S. Army Corps of Engineers Office of History
7701 Telegraph Road
Alexandria, VA 22315
POC: Dr. Martin Gordon
(703) 428-6558

The team researched the Archives Real Estate Files and the Picture Archives Photo Files. Neither contain any information on Carrington Island Precision Bombing Range.

U. S. Army Military History Institute
Carlisle Barracks, PA 17013
POC: Pam Cheney
(717) 245-3601

The Library, Archives and Photo Library was researched. The research team found no pertinent information for the Carrington Island Precision Bombing Range.

Chemical Biological Defense Agency Historical Office
Aberdeen Proving Ground
Edgewood, MD 21010
POC: Dr. Jeffrey Smart
(410) 671-4430

The team researched the Classified and Unclassified files of this office. Unclassified exerpts were taken from two documents on biological warfare. The office Defense Technical Information Center (DTIC) database was also searched.

U. S. Army Environmental Center Technical Library
Aberdeen Proving Ground
Edgewood, MD 21010
POC: Reference Librarian
(410) 671-1625

The database and Microfiche finding aid of this library was searched for available reports. The team researched laboratory weapons development reports of the Ralph Parsons Corporation, 1951-1953, but no pertinent information was copied from these reports. The reference librarian provided a contract number for our test site, based on information given from the Defense Technical Institute Center (DTIC) report database. The Aerial Photography finding aid was also researched.

Headquarters, U.S. Army Garrison, Fort Detrick, MD
Public Affairs Office, Building 810, Room 209
Fort Detrick, MD 21702
POC: Norman M. Covert, Chief
(301) 619-2018

The team researched one box of information on general biological warfare topics, but did not copy any information. The Public Affairs chief provided a copy of a report on the history of biological warfare in the U.S.

U.S. Army Medical Research Institute of Infectious Diseases
USAMRIID\MCMR-UIZ-A
Fort Detrick, MD 21702
POC: Theresa Haupt
(301) 619-2833

The team researched the following Classified Defense Technical Institute Center (DTIC) reports from the Classified Materials holding room. The titles are Unclassified:

Classified Materials Holding Room
Drawer: Field Tests
Folder: DPG R#289, Field Trials

Folder: AD 513-442, Field Test
Folder: AD 322-850, Field Test
Drawer: Munitions Development
Folder: AD 500-356, Munitions Development
Drawer: Anthrax
Folder: Table of Contents, Bacillus Anthrasis File

National Archives - Mid-Atlantic Region
900 Market Street
Philadelphia, PA 19107
POC: Kellee L. Blake
(215) 597-0921

The NARA Archivist reviewed applicable record groups and found no related records for the team to review as pertained to Carrington Island, UT Field Tests, Headquarters Fort Detrick, MD.

National Archives and Records Administration - Rocky Mountain Region
Building 48, Denver Federal Center
Denver, CO 80225
POC: Joan Howard
(303) 236-0817

The following list is the record groups available for review at this repository. The finding aids for these record groups was reviewed. Actual records pulled and reviewed follow this listing.

Record Group 49 (Records of the U.S. Forest Service)
Record Group 77 (Records of the U.S. Army Corps of Engineers)
Record Group 121 (Records of the U.S. Public Building Service)
Record Group 156 (Records of the U.S. Army Chief of Ordnance)
Record Group 269 (Records of the General Services Administration)
Record Group 270 (Records of the War Assets Administration)
Record Group 291 (Records of the General Services Administration Property Disposal)
Record Group 338 (Records of the U.S. Army Commands)
Record Group 342 (Records of the U. S. Air Force Commands)

The team reviewed the following:

Record Group 121 (Records of the U.S. Public Building Service)
Entry 58A-0198
Box 1 of 9 (Contained a volume 2 of a report on Wendover AAF, a map showing Carrington Island was copied)

Record Group 270 (Records of the War Assets Administration)
Entry Utah, 1940-1946
Boxes 1 to 82 (Of special interest were boxes 14 to 17, which contained information on the Salt Lake Army Airbase, UT)
Entry 57A-0542
Boxes 82, 91 and 92 (contained information on Ogden Arsenal, UT and Salt Lake Army Airbase, UT)

Record Group 291 (Records of the General Services Administration Property Disposal)
Entry 90-018 Case Files
Boxes 3 and 7 (contained information on Wendover Army Airfield, UT and Hill Army Airfield)
Boxes 1 of 4 and 3 of 4 (contained information on Wendover Army Airfield, UT and Hill Army Airfield, UT)

Denver Federal Records Center
Building 48, Denver Federal Center
Denver, CO 80225
POC: Mark Ferguson
(303) 236-0804

The 01 listing was reviewed for this repository. The following pertinent information was reviewed:

Record Group 121 (Records of the U.S. Public Building Service)
Accession 58A-0019
Boxes 2 and 3 of 9 (contained information on Casper Army Airfield, WY and Real Property Classification forms for the Rocky Mountain States, 1948-1950)
Accession 58A-0198
Boxes 4 through 9 of 9 (Information on CO, UT and WY sites)

Record Group 291 (Records of the General Services Administration Property Disposal)
Accession 67A-0221
Box 3 (Wyoming Property Disposal)
Accession 68A-0192
Boxes 2 and 3 (CO and UT Property Disposal)
Accession 71A-0013
Box 2 (Wyoming Property Disposal)
Accession 73A-0350
Boxes 1, 3 and 4 (CO and UT Property Disposal)
Accession 76A-0926
Boxes 1 through 6 of 6 (CO, ND, SD, UT, WY Property Disposal)

U.S. Army Corps of Engineers - Sacramento District
1325 J Street
Sacramento, CA 95814-2922
POC: William (Bill) Mullery
916-557-6944

The team researched and copied the backup files for the USACE Inventory Project Report (INPR) for Carrington Island, UT. Real estate documents and maps were copied from this file.

U. S. Bureau of Land Management, Salt Lake District Office
2370 South, 2300 West Street
Salt Lake City, UT 84119
POC: Jack Brown, Hazardous Materials Coordinator
(801) 977-4300

The team researched the real estate file on Carrington Island, UT. They copied applicable real estate documents, maps and slide photos. They also received the Surface Management Status maps for the southwestern Salt Lake and Utah Test Range areas.

State of Utah, Department of Archives
Capitol Hill
Salt Lake City, UT 84114
POC: Reference Archivist
(801) 538-3013

The team researched the following, but found no pertinent information on Carrington Island, UT:

Record Group: Independent Commissions, Great Salt Lake Authority
Series: Administration Files
Box B104h4, Administration Files, Great Salt Lake Authority, 1960's

Utah State Library
2150 S. 300 West Street 16
Salt Lake City, UT 84115
POC: Lennis Anderson, Librarian
(801) 466-5888

The team researched the following library materials and copied applicable information on Carrington Island, UT:

Call number A3500 R43.15:RES/7, The Great Salt Lake Research Report 7, by the Office of Legislative Research, State of Utah, June 1976.

Call number N4590G 7.7: GRE/976, Pertinent Report, Great Salt Lake Wildlife Report, by Edwin V. Rawley, Utah State Department of Natural Resources, 30 June 1976.
Call number 979.242, Pertinent report: Exploring the Great Salt Lake, by Brigham D. Madsen, 1989.
Call number 557, Pertinent document, Guidebook to the Geology of Utah, by the Utah State Geologic Society, 1966.

Explosive Ordnance Disposal Office
1781 Browning Street
Hill Air Force Base, UT 84056
POC: MSGT William Hayden
(801) 777-5502

The team researched a file on Carrington Island, which contained certificates of clearance and various pieces of correspondence pertaining to the clearance.

Historian Office
Hill Air Force Base, UT 84056
POC: Dr. Klinko, Historian
(801) 777-4402

The team researched microfilm and hard copy files pertaining to Wendover Air Force Base, Wendover Bombing and Gunnery Range, and the Utah Test Range. They copied applicable historical documents, correspondence and maps.

Civil Engineering Environmental Office
Hill Air Force Base, UT 84056
POC: Art Olivas
(801) 777-1897

This office did not provide any information pertaining to Carrington Island.

Hill Air Force Base Library
Hill Air Force Base, UT 84056
POC: Reference Librarian
(801) 777-2533

The team reviewed the following documents, but did not copy any pertinent information on Carrington Island:

Call Ref 358.07, History of Hill Air Force Base, 1980
Call Ref 358.07 Rice, History of Ogden Air Material Area, 1973
Call Ref 358.07 Air, Air Force Logistics Command, Strategic Plan, 1990

Tooele County Tax Assessors Office
47 S. Main Street
Tooele, UT 84074
POC: County Assessor
(801) 882-9140

The team researched the plat map for private ownership of Carrington Island. Address information on private ownership was taken from the tax roll computer.

University of Utah, Salt Lake City, Marriott Library, Special Collections
Salt Lake City, UT 84112
POC: Reference Librarian
(801) 581-8558

The team researched the following, and copied appropriate information on Wendover Air Force Base and Carrington Island:

Wendover AFB, Vertical File, two folders reviewed on Wendover Air Force Base.
Armed Forces, Utah, Vertical Newspaper Clippings File, one folder on the Wendover Range Complex.
Wendover Air Force Base Newspaper Clippings, one article copied on Wendover Bomb Range Off Limits, AF Warns, from the *Ogden Standard Examiner*, January 9, 1965.
Call Number F849 F34 M57 1990, Bravo 20, The Bombing of the American West, by Richard Misrach, information was only for Nevada.
Call Number P0158, Photos of the Great Salt Lake, by Clyde Anderson, 1930's
Accession 1355, Wendover Air Force Base Collection, 1944 - 1972
Call Number G59.5 1965 R68, A Geographical Survey of the Great Salt Lake
Call Number XF832.G7M6, Pertinent document, History of the Great Salt Lake, by Dale Lowell Morgan, 1947
Call Number QE169.A3 no. 116, Great Salt Lake, A Scientific, Historical and Economic Overview, by J. Wallace Gwynn, 1980. Information copied from another source.
Call Number P0044 no 12-41, Great Salt Lake and the Major Islands, by the Utah Humanities Research Foundation, 1970's.
Call Number F832.G7M5, Great Salt Lake, Past and Present, by David E. Miller, 1969.
Map Call Number G4344 W5E635 1986 W4, Map of Wendover Air Force Base. No Range Information Available.

Davis County Library, Headquarters Branch
38 S. 100 East Street
Farmington, UT 84025
POC: Reference Librarian
(801) 451-2322

The researchers searched the online catalog and reviewed the following materials:

Call Number 942.242 P946, Barrier of Salt, The Story of the Great Salt Lake.
Call Number 917.9242 U58, Report on the Great Salt Lake, by the U. S. Department of the Interior. This report was checked out by another patron and could not be reviewed.

Davis County Library, North Branch
562 S. 1000 East Street
Clearfield, UT 84041
POC: Reference Librarian
(801) 547-0729

The researchers searched the online catalog and reviewed the following materials:

358.4 H673, History of Hill AFB.
979.242 S 874, The Great Salt Lake, by William Lee Stokes, 1984.
917.9242 C998, Pertinent report, The Great Salt Lake, by Peter G. Czerny, 1976.

Davis County Library, Central Branch
155 N. Wasatch Street
Layton, UT 84015
POC: Reference Librarian
(801) 825-6662

The researchers searched the online catalog and reviewed various related materials that pertained to the following report.

358.417 259 Vol. 1, Installation Restoration Report, Utah Test Range, by the U. S. Army Corps of Engineers, 1991.

Utah State Historical Society Library
300 S. Rio Grande Street
Salt Lake City, UT 84101
POC: Wilson Martin, Assistant Director, Jim Dykeman, Geologist
(801) 533-3546

The team searched the card catalog and reviewed the following:

Newspaper Clippings File, Wendover AFB, UT
Photographic File: Carrington Island, UT; 1930's.
979.2 ST 4g 1975, The Great Salt Lake Desert, by Dale Stevens, 1975. This book was in the card catalog, but was not reviewed, because the librarian could not find it in the holdings.

Salt Lake City Public Library
209 E. Fifth South Street
Salt Lake City, UT 84111
POC: Reference Librarian
(801) 524-8200

The team searched the card catalog and reviewed the following:

R 557.92 U896 bu no. 116, Pertinent report, Great Salt Lake, a Scientific, Historical and Economic Overview, by J. Wallace Gwynn, June 1980.
338.95 M645 gr, Report on the Great Salt Lake, by Millard and Consultants, Utah Department of Natural Resources. This report was not reviewed, as it was checked out to another patron.

Dugway Proving Ground
Joint Contact Point Technical Information Center (STEDP-JCP)
Dugway, Utah 84022-5000
POC: Steve Christensen
801-831-3814

The research team spent a day and a half at the Technical Information Center reviewing documents on Carrington Island and associated programs. Steve Christensen, the Chief Librarian assisted the team accessing the classified and unclassified databases in order to review applicable documents. The reasearch team copied classified douments as well as the following unclassified report pertaining to tests conducted at Carrington Range:

Technical Study on Dissemination and Delivery of Antipersonnel BW Agents (U), from the Deputy Commander for Scientific Activities, Biological Warfare Laboratories, Fort Detrick, MD, Control Number 58-FDS-831, dated June 1958.

Phillips Laboratory
Historic Office
3560 Aberdeen Avenue
Kirtland AFB, NM 87117
POC: Bob Duffer
505-846-4319

The research team searched through the database and reviewed available reports. They copied classified material pertinent to Carrington Range.

Sandia Labs Technical Library
Kirtland AFB, NM 87117
POC: Susan Stinchcomb
505-845-8493

The research team reviewed available reports, which did not provide any information pertainent to Carrington Island.

Defense Technical Information Center
8725 John J. Kingman Road, Suite 0944
Fort Belvoir, VA 22060
POC: Technical Support Personnel
703-767-8274

The research team searched through the database for available information, and ordered the following reports:

AD-B193-426, U.S. Army Activity in the U.S. Biological Warfare Programs, Volumes I and II, by the U.S. Department of the Army, dated 4 February 1977

AD-B188-693, Investigation of RW and CW Munitions and Munition Dispersing, by the U.S. Department of the Army, dated 12 March 1958

AD-95-592, Test of the Boeing Bomb-Bay Dispenser and the 4 1/2-in. Spherical Bomblet (Type E120), by the U.S. Air Force Armament Center, Eglin AFB, FL, dated September 1956

4.3 SUMMARY OF INTERVIEWS

The archive search team conducted telephone and personal interviews to assist in the collection of information for this report. Appendix H lists interviewees and copies of pertinent individual conversation records. The team attempted to locate persons with first hand knowledge with very limited success. The current land owner of the private property portion is the daughter of the leaser but she has never been to the island and isn't currently using it. Contact with the local military Explosive Ordnance Disposal (EOD) units resulted in gathering the previously cited clearance documents for the island but no additional incident reports of OE hazards. Hearsay, related additional details concerning the prototype biological bomblets filled with dye washing up on Carrington Island in the mid-1960's. Efforts to locate and interview the fisherman who found the item were in vain.

4.4 AIR PHOTO INTERPRETATION AND MAP ANALYSIS

4.4.1 General Area Map Analysis

The analysis of the **Carrington Island Precision Bombing Range** used the following USGS 7.5' topographic quadrangles of the site:

Carrington Island, Utah (photo revised 1987)
Badger Island, Utah (photo revised 1969)

This site is located on Carrington Island within the Great Salt Lake in the northern portion of Utah. Carrington Island is in Tooele County near the intersection of the Davis and Box Elder Counties borders. The site lies in Township 3N Range 6W (Sections 6, 7, and 8) and Township 3N Range 7W (Sections 1 and 12), approximately 32 miles north of the city of Tooele also the County seat. The island is approximately six miles from the nearest point of land (Stansbury Island). At low water, numerous mud flats are exposed around the island. The immediate area supports no roads or railways, but Interstate 40 and the Western Pacific Railroad run approximately 15 miles to the south. The center of the island rises steeply to a peak approximately 500 feet above the Great Salt Lake. The rugged topography of the island shows narrow terracing following hillside contours with little soil cover and scrub vegetation. The following readings reflect general geographic coordinates of the site:

NW corner	41° 01' 00" N Latitude	112° 35' 30" W Longitude
SW corner	41° 00' 00" N Latitude	112° 35' 30" W Longitude
SE corner	41° 00' 00" N Latitude	112° 33' 00" W Longitude
NE corner	41° 01' 00" N Latitude	112° 33' 00" W Longitude

4.4.2 Site Specific Map and Drawing Analysis

This archive search located five military site plan maps for Carrington Island. Analysis of these maps located **no** specific site improvements or other significant OE details. The maps depict the location of Carrington Island as it related to the larger ranges: Carrington Range and Wendover Bombing and Gunnery Range. Appendix K contains all of the maps.

4.4.3 Air Photo Interpretation

Government and contractor personnel conducted an aerial photography database search. The aerial photography retrieved covered Carrington Island Precision Bombing Range during the time period prior to, during and following military use. The imagery acquired is in photographic print format. The analyst performed the interpretation using the following source materials:

Photo Date	Approx. Scale	Source	Frame ID #s
09 Aug 50	1:40,000	Nat. Archives	88-91
06 Sep 77	1:32,000	BLM	5-13 1-3 5-14 1-4
06 Oct 78	1:50,000	ASCS	178 172-174
30 Jun 93	1:40,000	EROS	150-151 5976 2 20-22

The analyst delineated imagery containing important areas on hard copy plots and digitized it using Computer-Aided Drafting and Design (CADD) software. The digitized features

overlay on a scanned aerial photography, resulting in the final plots (see Plate 2). The analysis involved using stereo viewing of photography which allows more accurate identifications over monoscopic interpretations. Resolution and scale of the imagery limited the identification of features discussed in this study. The analyst used the word "probable" when discussing features for which identification is reasonably accurate. The analysis used the term "possible" when identification was not positive, but the object/area matched known features/locations on other sources. The **bolded** numbers in parentheses referenced in the sub-paragraphs below refer to the feature descriptions on the annotated aerial photography plates. The sub-paragraphs below describe the relevant features identified on the imagery:

4.4.3.1 1950 Imagery - The 1950 photos show the condition of the site during its use as a bombing range. A collateral source from 1947 describes a white cross 200 feet long and 50 feet wide at the geographical center of the island (100 feet south of the highest point of the island). A circa 1947 aerial photograph, a copy of which was available for analysis, shows the cross. Plate 2 shows the location of the cross (**1**), though by 1950, no visible evidence of this or any other target remain discernable on the island. Furthermore, there is no discernable evidence of any man-made improvements to the island, either military of civilian. Light-toned marks relatively uniform in size (possible bombing scars or craters) cover the entire island and possibly obliterated evidence of the cross. Collateral sources also identify ten 30 feet range markers aligned in a pattern approximately eight miles northwest of Carrington Island. While the stereo photos do not cover this area, the oblique photos that provide coverage show no evidence of the range markers. Given the scale of the imagery and the size of the items, this is not surprising.

4.4.3.2 1977, 1978 and 1993 Imagery - Aerial imagery reviewed from later dates, 1977, 1978, and 1993 revealed no additional information of possible ordnance or military related functions. The island appears essentially the same as in the earlier photos. The possible bombing scars, so prominent in the 1950 photos, are less noticeable by 1978 and even less so by 1993.

5.0 REAL ESTATE

5.1 CONFIRMED DOD OWNERSHIP

The former **Carrington Island Precision Bombing Range** involved a total of 1,767.08 acres of real estate. The Department of Interior, Bureau of Land Management (BLM) granted a use permit to the War Department for 1,225.55 acres of Carrington Island on 3 May 1945. The military leased the remaining 541.53 acres from private land owners. The archive search did not uncover the details of the original lease, number W-04-193 ENG-5811. A subsequent lease for the 541.53 acres was dated 2 October 1952 (U.S. Army Corps of Engineers 1963).

Carrington Island covers portions of section 6, 7, 8 and 18 of Township 3 North, Range 6 West and portions of section 1, 12 and 13 of Township 3 North, Range 7 West.

The Department of the Air Force relinquished the 1,225.55 acres to the BLM on 13 August 1962 and retransferred it to them on 30 April 1963. They terminated the lease for the 541.53 acres on 25 May 1962 (U.S. Army Corps of Engineers 1963). These acreage figures concur with the real estate numbers stated in the INPR (see Appendix D-1).

Based on the second Certificate of Clearance dated 7 March 1963, the Air Force released Carrington Island Precision Bombing Range with no restrictive covenants or land use restrictions (2701st EOD 1963).

5.2 POTENTIAL DOD OWNERSHIP

The archive search did not identify any additional areas of potential or undocumented military ownership or land use associated with Carrington Island Precision Bombing Range.

5.3 SIGNIFICANT PAST OWNERSHIP OTHER THAN DOD

This investigation did not reveal any significant past ownership of Carrington Island Precision Bombing Range with relationship to OE or CWM.

5.4 PRESENT OWNERSHIP

Records reviewed indicate Carrington Island remains in public domain under the Department of the Interior and private property in possession of the family that leased it to the military.

6.0 SITE INSPECTION

6.1 GENERAL PROCEDURES AND SCOPE

The ASR site inspection characterized OE and CWM potential based on a visual examination at Carrington Island Precision Bombing Range. Land owners granted verbal permission for right-of-entry on privately owned property prior to the inspection. This inspection included only visual and non-intrusive methods of inspection. The team followed a site safety and health plan (SSHP) prohibiting digging or handling of potential OE/CWM. The SSHP defined standard operating procedures to ensure safety and prevent accidents. Appendix L-1 contains a copy of the SSHP. The inspection team consisted of the following personnel: Jim Luebbert, Randy L. Fraser and Randal S. Curtis of the St. Louis District Corps of Engineers; Jack Brown and Philip Allard of the Salt Lake City District of the Bureau of Land Management; Dennis Weder the Range Environmental Coordinator for Hill Air Force Base; Dave Lawson from the State of Utah Department of Environmental Quality - Division of Solid and Hazardous Wastes (FUDS compliance); and Don Kelly the Rescue Boat Pilot for the Great Salt Lake State Park. They performed a site survey of the former Carrington Island Precision Bombing Range on 5 September 1996. Subsection 6.2 contains a synopsis of the site inspection, and Appendix L-2 contains a detailed account. Appendix I includes current site photographs.

6.2 SITE INSPECTION SYNOPSIS

On Thursday 5 September, the entire team assembled at the Great Salt Lake Yacht Club marina located on the south shore of the State Park about a mile southwest of Exit 104 on I-80. During the project safety briefing, Dennis Weder related additional hearsay details about the newspaper account of the prototype biological bomblets filled with dye washing up on Carrington Island in the mid-1960's. Evidently one of the local brine fisherman found an intact bomblet which dispersed purple dye all over himself. The intially unknown contents of the bomblet caused a bit of a stir. The fisherman was eventually taken to Dugway Proving Ground's hospital, and the contents of the bomblets determined.

After the project safety briefing, the team placed all their gear on the state park's rescue boat. The trip to the island took approximately an hour and a half for the roughly 25 mile distance. The waters of the lake were rough, and a crossing in a less powerful boat would have been difficult and dangerous. The rescue boat anchored off Stoddard Point on the northern edge of the island. Don Kelly remained with the rescue boat as did Dennis Weder, who was bothered by a knee injury. Inflating a raft, the remainder of the team paddled ashore, landing on the island at approximately 1200.

The team spread out roughly 50 feet apart, heading in a southerly direction toward the center of the island. They immediately began finding OE debris of various types and craters up to

4 feet deep and 20 feet in diameter. Due to the large quantities of OE and craters on the island, the team didn't take coordinates at every location. They positively identified the following items:

500 pound General Purpose (GP) or Demolition Bomb bodies AN M43 or AN M46
100 pound Practice Bombs M38A2
50 pound Photo flash Bombs, M46
2.25 Inch Practice Rockets (rocket motor and fin assemblies, no inert heads or igniter cables found)
.50 Caliber cartridge cases

The team found numerous fragments from General Purpose (GP) or Demolition Bombs. The bombs wall thickness measured ≈5/16 inch, which classifies them as 500 pound GP bomb bodies. The team also located several 500 pound bomb bodies nearly intact. Aircraft apparently dropped these items empty or with a sand or water fill. The GP bomb fragments found did not appear to be from a high order explosion. The team did not verify the use of 100 pound GP bombs by any of the OE discovered during the site visit, although historical documents indicated their use.

The team also came across an area of incendiary bombs (more than 50) sticking out of the ground (GPS coordinates N 41° 00' 48.6", W 112° 34' 01.1" [1]). Based on the size, shape, horizontal fuze near the blunt end nose, and the cheese cloth/gauze still evident in one item, the inspection team identified the incendiary bombs as the gelled gas filled M-67. Based on the tight dispersion and the number, the bombs apparently dropped from a single cluster of 60 bombs. Personnel also observed the remains of two cluster bomb adapters (with and without lifting lugs) and 3/4 inch wide metal cluster strapping.

The inspection team could not positively identify several metal objects: an ≈8 inch diameter sheet metal disc, an ≈8 inch sheet metal disk with a ≈2.5 inch hole, and an ≈8 inch diameter sheet metal cylinder with a flat end cap. The team tentatively identified these items as belonging to the M-24 aircraft flare, which is a 44 pound pyrotechnic flare used in night bombardment training.

At the summit of the island, Lambourne Rock, the team discovered the remains of fence posts and wire but no overt signs of the 200 feet by 50 feet visual target center described by historical documents. The team conjectured that the posts and wire possibly held a canvas target since deteriorated. To the south of the summit several hundred feet lies a large amount of OE debris, particularly the 100 pound practice bombs, the 50 pound photo flash bombs, and the 500 GP bomb bodies. The coordinates of the OE debris pile are N 41° 00' 25.5", W 112° 34' 10.4". The inspection team felt the OE debris pile resulted from the EOD clearances of the island in the early 1960's.

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[1] All coordinates were taken with a Trimble Scout GPS (Global Positioning Satellite) receiver using mapping datum WGS-84.

The team traversed the island in a west, northwest direction back to the shoreline finding similar types and amounts of OE as described above. Along the shore line, the team found two yellow plastic bomblet pieces. One spherical piece measured 3 inches in diameter with 9 longitudinal external ribs. Less remained of the second bomblet and the design differed from the first. This bomblet measured 2.5 inches in diameter with spherical end caps and 9 longitudinal ribs. It appeared to possibly be part of a spherical bomblet 3 inches in total diameter, but not enough remained to positively identify the shape. Appearently these items came from a series of dispersion tests for developmental munitions at the Carrington Range, whose water markers were located northwest of the island. The team also noted a dilapidated stock pen, apparently from the failed sheep grazing attempt in the 1930s, on the north end of the island about 1,000 feet west of Stoddard Point.

The team rendezvoused at the landing location and floated back out to the rescue boat. The return trip lasted only about an hour due to the much calmer wave conditions. The inspection ended at 1700.

7.0 EVALUATION OF ORDNANCE POTENTIAL

7.1 CONVENTIONAL ORDNANCE CONTAMINATION

The archive search uncovered evidence that War Department and the Air Force utilized conventional ordnance at Carrington Island Precision Bombing Range. The types of ordnance and explosives verified as associated with Carrington Island by the site inspection or documentation included:

500 pound General Purpose (GP) or demolition bombs (AN M43 or AN M46)
100 pound GP or demolition bombs
100 pound practice bombs M38A2
50 pound photo flash bombs, M46
flare, aircraft, parachute, M-24
10 pound incendiary bombs (gelled gas filled), M-67
2.25 inch practice rockets
.50 caliber

Historical documents also show that the Air Force approved the use of up to 2,000 pound GP demolition bombs at Carrington Island. The site inspection uncovered large amounts of OE debris for these items but did not uncover any overt evidence of an immediate ordnance or explosives hazards. However, some of the items, particualrly the M-67 incendiary bombs, may still contain residual explosive material.

7.2 CHEMICAL WARFARE MATERIAL CONTAMINATION

The archive search uncovered no evidence of chemical warfare materials testing, storage, usage, or disposal at Carrington Island Precision Bombing Range. Research discovered no historical records associating CWM with the site. Interviews did not disclose any correlation of CWM with the site. Additionally, the site inspection did not uncover any evidence of CWM hazards.

7.3 BIOLOGICAL AND RADIOLOGICAL WARFARE MATERIAL CONTAMINATION

The archive search uncovered evidence that the Air Force and the Army Chemical Corps conducted a series of developmental munition dispersion tests on the Carrington Range in the early 1950s. Carrington Range included Carrington Island and the target of ten permanent range markers in the water about 8 miles northwest of the island. The site inspection verified the presence of plastic bomblets, apparently from these tests, washed on the shoreline of Carrington Island. A classified addendum to this archive search report details specifics of these tests. All the evidence the archive search uncovered indicates these were **only dispersion tests**. The archive search uncovered **no** evidence that the munitions tested at Carrington Island Precision Bombing Range or the Carrington Range contained active biological simulants, pathogenes or active radiological agents.

8.0 TECHNICAL DATA OF ORDNANCE AND EXPLOSIVES

8.1 ORDNANCE AND CHEMICAL RELATED MISSIONS

The military utilized conventional ammunition on Carrington Island Precision Bombing Range for target practice bombing. Conventional items identifed on the island from documentation or verified by the site inspection include:

500 pound General Purpose (GP) or demolition bombs (AN M43 or AN M46)
100 pound GP or demolition bombs
100 pound practice bombs M38A2
50 pound photo flash bombs, M46
flare, aircraft, parachute, M-24
10 pound incendiary bombs (gelled gas filled), M-67
2.25 inch practice rockets
.50 caliber

The archive search did not uncover evidence of the use of chemical warfare materials at Carrington Island Precision Bombing Range. The military's activities at this site did not include the testing, storage, disposal, or the use of CWM.

8.2 DESCRIPTION OF CONVENTIONAL ORDNANCE

The GP bomb bodies discovered on the surface at Carrington Island exhibited evidence of being dropped empty or with a sand/water fill. These bodies fragmented on impact. The team discovered no shrapnel from high explosive GP bombs, although the island is heavily cratered. Historical documentation also states the Army dropped 100 pound GP bombs (Appendix C-3 and C-4) and approved the use of up to 2,000 pound GP bombs, though the site inspection did not confirm either use.

The remains observed during the site visit revealed that the 100 pound M38A2 Practice Bombs were dropped at Carrington Island (Appendix C-4). The scrap consisted of metal from the bomb bodies, tail assemblies, and spotting charges. The M38A2 was a thin cased bomb, easy to manufacture, inexpensive in cost, and accurate in use. It was the standard practice bomb for demolition bombing. The practice bomb could utilized several different spotting charges, but the most common one being the M1A1 Spotting Charge (Appendix C-1). It resembled a large size tin can and consisted of three pounds of black powder, a 28 gage blank shotgun shell and a firing mechanism.

The photoflash bombs made possible night time photography. The fill for this bomb consisted of photographic flash which produced enough candle power to allow photographing. The two common sizes included the 23 pound laminated cardboard bomb and the 50 pound pressed sheet steel bomb. The inspection team discovered remains of the 50 pound M46 style photoflash bombs on Carrington Island (Appendix C-3).

The M-24 flare aircraft is a 44 pound pyrotechnic with a parachute. It is used for to illuminate targets for nightime bombardment training. The M24 has a 75/25 mixture of a flare composition and black powder (Appendix C-4).

Incendiary bombs' filler consisted of combustible material which burns causing destruction by fire. They normally were employed against targets with a high percentage of roof coverage. Aircraft dropped these incendiary bombs in clusters of 100 pounds or 500 pounds. The individual bombs loaded into an adapter, which then formed a cluster. The M67 10 pound incendiary bomb contained a side fuze and an oil filler (Appendix C-3).

The 2.25 inch practice rocket, referred to as the sub-caliber aerial rocket or SCAR, was used to simulate trajectory of the larger 5.0 inch high velocity aerial rocket (HVAR). These rockets were used for practice firing against surface targets. The head that was assembled to the motor was a solid steel, zinc die cast, or a cast iron inert item with no fuze (Appendix C-2).

A common weapon on aircraft included the .50 caliber machine gun. This weapon proved its effectiveness during air-to-air and air-to-ground conflict. The machine gun ammunition came in belts of metal links. The most common model used in training was the ball round (Appendix C-4).

8.3 DESCRIPTION OF CHEMICAL WARFARE MATERIALS

The archive search did not uncover evidence of the use of chemical warfare materials at the Carrington Island Precision Bombing Range.

8.4 DESCRIPTION OF BIOLOICAL AND RADIOLOGICAL WARFARE MATERIALS

Due to the developmental nature of the BW and RW items associated with Carrington Island, this report does not contain a detailed description of these items. A classified addendum to this archive search report details more specifics of these items.

9.0 EVALUATION OF OTHER SITE INFORMATION

The archive search did not reveal any additional areas of potential environmental concern associated with the military use of Carrington Island Precision Bombing Range.